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10/694,062	10/28/2003	Osamu Kizaki	244515US2	3829

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EXAMINER	
CHENG, PETER L	

ART UNIT	PAPER NUMBER
2625	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/694,062	KIZAKI ET AL.	
	Examiner	Art Unit	
	PETER L. CHENG	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 20-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18 and 20-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/12/2009, 4/1/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 30 is objected to because of the following informalities:

- **Line 11:** it is assumed that **the connected apparatus** should be **the first image-forming apparatus**;

- **Line 12:** it is assumed that **the connected apparatus** should be **the first image-forming apparatus**;

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1 - 7, 22, 26, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **NIITSUMA [US Patent Application 2001/0050782 A1]** in view of **DENNIS [US Patent 5,471,563]** and **YOSHIDA [US Patent 6,931,432 B1]**.

As for claim 1, NIITSUMA teaches an image-forming apparatus

[Fig. 2 digital copier **1]**,

comprising:

[[with]] a hardware resource configured to be used for image formation

[Fig. 2 image forming means **14]**; [[,]]

a program configured to perform processing related to the image formation

[Fig. 2 controller **12;** "the control means 12 is structured by a single central processing unit CPU, and by this single CPU, operations and controls of the … digital copier 1 are conducted"; **page 6, paragraph 92, lines 1 - 4]**; ;

~~and~~ a communication part

[Fig. 2 network connecting means **11]**; ~~,~~

~~the image-forming apparatus comprising:~~

a format information acquisition part configured to acquire format information from an apparatus connected to the image-forming apparatus via the communication part, the format information including information on whether a format of image data is supportable as input by the connected apparatus

[NIITSUMA illustrates a first embodiment shown in **Fig. 1** where an "image read out by digital copier 1 or 2 is transferred to the other apparatus through a network 4, and the image received from the other apparatus through the network 4 can also be formed by the digital copier 1 or 2"; **page 4, paragraph 49, lines 9 – 12.**

NIITSUMA illustrates a second embodiment shown in **Fig. 3** where "the image forming apparatus is the digital copier, and the information processing apparatus is the personal computer"; **page 6, paragraph 87, lines 3 – 5.** NIITSUMA teaches that the second embodiment is "applied *also* for a case where the image forming apparatus *communicates* with the *other* image forming apparatus"; **page 6, paragraph 87, lines 9 – 11.**

NIITSUMA teaches an "image-forming apparatus" (i.e., digital copier 1) that has a "compression means for compressing the image data and a compression selection means for automatically selecting and determining whether the image data is compressed by the compression means and transmitted, or the image data is not compressed and transmitted"; **page 8, paragraph112, lines 2 – 6.**

NIITSUMA teaches that the "compression selection means" may determine whether the image data is compressed and transmitted by various criteria. One of these criterion is "according to the result of the negotiation with the apparatus of the transferring point"; **page 8, paragraph 116, lines 1 – 2.**

The "connected apparatus" corresponds to this "apparatus of the transferring point". NIITSUMA teaches that the "digital copier 1" (i.e., "image-forming apparatus") communicates with the "apparatus of the transferring point" (i.e., connected apparatus) "before the image data is transmitted, and the apparatus of the transmission point directs whether the image data is compressed or not, to the digital copier 1 during the communication"; **page 8, paragraph 117, lines 1 – 5.**

Therefore, NIITSUMA teaches a "connected apparatus" (i.e., the "apparatus of the transferring point"; e.g., another digital copier) generating and communicating

format information (i.e., either compressed or uncompressed image data) supportable by the "connected apparatus"**]**

a format determination part configured to determine a transfer-time format [[of]] <u>for</u> the image data ~~to be transferred to the connected apparatus~~, based on the format information that has been acquired ~~and that includes the information on whether the format of the image data is supportable as input by the connected apparatus~~

[As noted above, the "image-forming apparatus" corresponds to a "digital copier 1". This copier communicates with a "connected apparatus" (i.e., another digital copier) and acquires format information supportable by the "connected apparatus"**.** *A determination is made as to whether compressed image data is sent through negotiation.*

In addition, the "image-forming apparatus" has a "compression selection means" which determines a "transfer-time format" for image data to be transferred to the "connected apparatus" as a result of the negotiation between apparatuses**]**,

<u>the format determination part further configured to determine the transfer-time format based on whether the format of the image data is inversely convertible in the connected apparatus, when the format of the image data cannot be output in the connected apparatus</u>;

an image quality selection part configured to select a level of an image quality at which the image data is transferred to the connected apparatus, based upon capabilities of the connected apparatus;

and an image data conversion part configured to perform a format conversion of the image data ~~to be transferred to the connected apparatus~~ in accordance with the determined transfer-time format of the image data and the level of the image quality that has been selected

[As noted above, the "*image-forming apparatus*" has a "compression means" for compressing the image data. "Compressing data" corresponds to image data "format conversion".

The "*image-forming apparatus*" determines a "transfer-time format" based on the negotiation between apparatuses. If the image data-receiving (i.e., "first image-forming") apparatus is capable of receiving compressed data, the "transfer-time format" is determined to be "compressed data". As a result, the "second image-forming apparatus" performs format conversion of the image data by using the "compression means" prior to transferring the data to the "first image-forming apparatus"**].**

However, NIITSUMA *does not specifically teach* a first limitation

the format determination part further configured to determine the transfer-time format based on whether the format of the image data is inversely convertible in the connected apparatus, when the format of the image data cannot be output in the connected apparatus;

and a second limitation

an image quality selection part configured to select a level of an image quality at which the image data is transferred to the connected apparatus, based upon capabilities of the connected apparatus;

Regarding the first limitation, DENNIS illustrates in **Fig. 4** three "possible options for delivering a band of data to the printer. The A form … represents a band of data that is described using any number of draw primitives in the form of an RPL [i.e., a "render primitive list"; see **col. 7, lines 28 - 31**]. The B form of the data represents a bit-map data file describing the band. Note that the bit-map may be created in either the host computer 202 or the printer 218. In some cases, the host computer 202 may compress the bit-map data file as represented by the C form"; **col. 25, lines 15 – 23.**

With further reference to **Fig. 2**, DENNIS teaches that "in option 2 the host computer 202 transmits the RPL (A form) directly to the printer 218. The printer renders the RPL (A form) to create a bit-map data file (B form) within the printer"; **col. 25, lines 30 – 33.**

Although the "printer side" may receive data in any one of three forms, it requires bit-map data (i.e., the "B form") for printing. Neither "A" nor "C" data forms can be *directly output by the printer*. In addition, since the "A form" data requires conversion to bit-mapped data (i.e., "B form" data), and the "C form" data requires decompression to bit-mapped data, both "A" and "C" data forms may be considered "*inversely convertible*" on the printer side.

That is, DENNIS teaches that the *format of the data communicated* between the *image-forming apparatus* and the *connected apparatus* is also determined by whether the *format of the data communicated* can be *inversely converted* by the *connected apparatus* into a form that can be printed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of DENNIS with those of NIITSUMA and determine a transfer-time data format that can be *inversely converted* by the *connected apparatus* into a form that can be output by the *connected apparatus*.

Regarding the second limitation, like NIITSUMA, YOSHIDA teaches an apparatus and method for "remote copying". **Fig. 1** illustrates an "image processing apparatus" **1001** connected to a local area network (LAN) **1010**. **Fig. 2** shows a "controller unit" **2000** "connected to devices such as a scanner 2070 serving as an image input device … and a printer 2095 serving as an image output device … and also connected to a LAN 2011

(LAN 1010) … so as to control the input/output operation of image information and device information"; **col. 5, lines 17 – 24.**

YOSHIDA teaches that the controller unit contains an "image compression / decompression unit 2040" which "performs compression / decompression on image data according to the JPEG standard from multi-level image data and according to the JBIG, MMR, or MH technique for two-level image data"; **col. 5, line 66 – col. 6, line 3.**

As is known in the art, JBIG encoding is a type of "lossless image compression" which can provide higher image quality than an irreversible, "lossy" type compression.

Fig. 17 illustrates a user interface screen from which a remote copy operation may be performed. This screen includes "a printer selection button (3103) and a printer indication box (3102), an image quality selection button (3105) and an image quality indication box (3104)"; **col. 15, lines 19 – 22.** "If the printer selection button (3103) is pressed, a list of names of available printers … is displayed in the form of a pull-down menu"; **col. 15, lines 29 – 32.** "If the image quality setting button (3105) is pressed, a list of image qualities (refer to FIG. 19) is displayed so that a desired image quality (photo mode, character/photo mixed mode, character mode) can be selected from the list"; **col. 15, lines 36 – 39.** "If a copy parameter setting button is pressed, a subscreen for setting the conditions (scaling, paper selection, sorter setting, two-sided copying setting) corresponding to the pressed button appears"; **col. 15, lines 40 – 43.**

YOSHIDA further teaches that the features and characteristics of each of the available printers are provided in an "address book" which includes "document formats that devices can accept", "compression types that devices can accept", "image resolution that devices can accept", and "paper sizes and information about paper feeders"; **col. 13, lines 4 – 11.** In addition, the "address book stores data representing the data formats, the types of images allowed to be transmitted, and the resolutions, in relation to the respective destinations"; **col. 10, lines 18 – 21.**

As is known in the art, both the *type of compression* (i.e., whether, "lossless" or "lossy") and *image resolution* determine *image quality*.

That is, the user interface shown in **Fig. 17** and the capabilities of an apparatus obtained from an "address book" teach

> ***an image quality selection part configured to select a level of an image quality at which the image data is transferred to the connected apparatus, based upon capabilities of the connected apparatus;***

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of YOSHIDA with those of NIITSUMA and DENNIS so that *image quality could be selected based upon capabilities of the connected apparatus*.

Regarding claim 2, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, further comprising:

> **an apparatus selection part configured to select one or more apparatuses from a plurality of apparatuses connected to the image-forming apparatus via the communication part.**

As noted for claim 1, YOSHIDA illustrates in **Fig. 17** a user interface screen from which a remote copy operation may be performed. This screen includes "a printer selection button (3103) and a printer indication box (3102), an image quality selection button (3105) and an image quality indication box (3104)"; **col. 15, lines 19 – 22.**

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of YOSHIDA with those of NIITSUMA and DENNIS so that *an operator could select one or more apparatuses (i.e., printers) through the functionality of the user interface screen's "printer selection button"*.

Regarding claim 3, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 2, wherein

> **said apparatus selection part is configured to select the one or more connected apparatuses based on an input by an operator.**

As noted for claim 2, YOSHIDA's user interface screen allows an operator to *select one or more connected apparatuses based on an input by an operator.*

Regarding claim 4, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 2, wherein

> **said apparatus selection part is configured to select the one or more connected apparatuses based on information input to the image-forming apparatus.**

YOSHIDA further teaches that the features and characteristics of each of the available printers are provided in an "address book" (i.e., *information input to the image-forming apparatus*) which includes "document formats that devices can accept", "compression types that devices can accept", "image resolution that devices can accept", and "paper sizes and information about paper feeders"; **col. 13, lines 4 – 11.** In addition, the "address book stores data representing the data formats, the types of images allowed to be transmitted, and the resolutions, in relation to the respective destinations"; **col. 10, lines 18 – 21.**

That is, YOSHIDA's user interface screen allows an operator to *select one or more connected apparatuses based on features and characteristics of the connected apparatuses provided in an "address book".*

Regarding claim 5, NIITSUMA further teaches the image-forming apparatus as claimed in claim 1, wherein

said format information acquisition part is configured to acquire the format information by making a request to the connected apparatus for the format information

[NIITSUMA teaches that the "image-forming apparatus" (i.e., digital copier 1) requests from the "connected apparatus" (i.e., "the apparatus of the transferring point") format information by communicating "with the apparatus of the transferring point before the image data is transmitted, and the apparatus of the transmission point directs whether the image data is compressed or not, to the digital copier 1 during the communication"; **page 8, paragraph 117, lines 1 - 5].**

Regarding claim 6, NIITSUMA further teaches the image-forming apparatus as claimed in claim 1, wherein said format information acquisition part is configured to acquire said format information, which includes at least one of:

information indicating, format by format, whether [[a]] the format of the image data is supportable as input and is supportable as output by the connected apparatus

[As previously noted for claim 1, NIITSUMA teaches a "connected apparatus" (i.e., the "apparatus of the transferring point"; e.g., another digital copier) generating and communicating format information (i.e., either compressed or uncompressed image data *formats*) supportable by the "connected apparatus"

As noted for claim 1, an image read by the image-forming apparatus can be transferred to a "connected apparatus" (as *input*) and "formed" (as *output*) by the connected apparatus**];**

information on whether the format of the image data is convertible in the connected apparatus

[NIITSUMA further teaches that the "connected apparatus" may have an "extension function" that "extends" (or expands) compressed image data; **page 8, paragraph 117, lines 10 – 11.** When an "extension function" is present in the "connected apparatus", the "connected apparatus" directs the "image-forming apparatus" to compress the image data; **page 8, paragraph 117, lines 11 – 14.**

Therefore, "information on a format" of image data (i.e., compressed image data) convertible (i.e., "expandable") in the "connected apparatus" is communicated to the "image-forming apparatus".**];**

information on a compression of a convertible format of the image data

[As noted above, NIITSUMA teaches that the "connected apparatus" provides information by directing the "image-forming apparatus" to either compress or not compress the image data based on whether or not the "connected apparatus" has an "extension function". "When the apparatus … has an extension function

to extend the compressed image data, the apparatus directs" (the image-forming apparatus) "to compress the image data and transfer it, and when it does not have, the apparatus directs" (the image-forming apparatus) "to not compress the image data and transfer it"; **page 8, paragraph 117, lines 10 - 14];**

and information as to whether the format of the image data is convertible by hardware in the connected apparatus

[As noted above, NIITSUMA teaches that the "connected apparatus" conveys information (to the "image-forming apparatus") as to whether the image data is convertible by hardware (i.e., an "extension function") by directing the "image-forming apparatus" to either compress or not compress the image data**].**

Regarding claim 7, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, wherein

said format information acquisition part is configured to store the acquired format information, which is based on a unit of the connected apparatus.

As noted for claim 1, YOSHIDA teaches that the "address book" provides the features and characteristics (i.e., the "capabilities" and "acquired format information") of the connected apparatuses (i.e., printers). These features and characteristics are stored in an address book.

Regarding claim 22, NIITSUMA further teaches the image-forming apparatus as claimed in claim 1, wherein

the communication part is configured to connect the image-forming apparatus to the connected apparatus through a network

[NIITSUMA illustrates a first embodiment shown in **Fig. 1** where an "image read out by digital copier 1 or 2 is transferred to the other apparatus through a network 4, and the image received from the other apparatus through the network 4 can also be formed by the digital copier 1 or 2"; **page 4, paragraph 49, lines 9 – 12].**

As for claim 26, NIITSUMA teaches an image data transfer method of an image-forming apparatus

[Fig. 2 digital copier **1]**

with a hardware resource used for image formation

[Fig. 2 image forming means **14]**,

a program configured to perform processing related to the image formation

[Fig. 2 controller **12;** "the control means 12 is structured by a single central processing unit CPU, and by this single CPU, operations and controls of the … digital copier 1 are conducted"; **page 6, paragraph 92, lines 1 - 4]**,

and a communication part

[Fig. 2 network connecting means **11]**,

the image data transfer method comprising:

acquiring format information from an apparatus connected to the image-forming apparatus via the communication part, the format information including information on whether a format of image data is supportable as input by the connected apparatus

[NIITSUMA illustrates a first embodiment shown in **Fig. 1** where an "image read out by digital copier 1 or 2 is transferred to the other apparatus through a network 4, and the image received from the other apparatus through the network 4 can also be formed by the digital copier 1 or 2"; **page 4, paragraph 49, lines 9 – 12.**

NIITSUMA illustrates a second embodiment shown in **Fig. 3** where "the image forming apparatus is the digital copier, and the information processing apparatus is the personal computer"; **page 6, paragraph 87, lines 3 – 5.** NIITSUMA teaches that the second embodiment is "applied *also* for a case where the image forming apparatus *communicates* with the *other* image forming apparatus"; **page 6, paragraph 87, lines 9 – 11.**

NIITSUMA teaches an "image-forming apparatus" (i.e., digital copier 1) that has a "compression means for compressing the image data and a compression selection means for automatically selecting and determining whether the image

data is compressed by the compression means and transmitted, or the image data is not compressed and transmitted"; **page 8, paragraph112, lines 2 – 6.**

NIITSUMA teaches that the "compression selection means" may determine whether the image data is compressed and transmitted by various criteria. One of these criterion is "according to the result of the negotiation with the apparatus of the transferring point"; **page 8, paragraph 116, lines 1 – 2.**

The "connected apparatus" corresponds to this "apparatus of the transferring point". NIITSUMA teaches that the "digital copier 1" (i.e., "image-forming apparatus") communicates with the "apparatus of the transferring point" (i.e., connected apparatus) "before the image data is transmitted, and the apparatus of the transmission point directs whether the image data is compressed or not, to the digital copier 1 during the communication"; **page 8, paragraph 117, lines 1 – 5.**

Therefore, NIITSUMA teaches a "connected apparatus" (i.e., the "apparatus of the transferring point"; e.g., another digital copier) generating and communicating format information (i.e., either compressed or uncompressed image data) supportable by the "connected apparatus"**]**

determining a transfer-time format [[of]] <u>for</u> the image data ~~to be transferred to the connected apparatus~~, based on the format information that has been acquired ~~and that includes the information on whether the format of the image data is supportable as input by the connected apparatus~~

[As noted above, the "image-forming apparatus" corresponds to a "digital copier 1". This copier communicates with a "connected apparatus" (i.e., another digital copier) and acquires format information supportable by the "connected apparatus"**.** *A determination is made as to whether compressed image data is sent through negotiation.*

In addition, the "image-forming apparatus" has a "compression selection means" which determines a "transfer-time format" for image data to be transferred to the "connected apparatus" as a result of the negotiation between apparatuses**]**,

<u>and determining the transfer-time format based on whether the format of the image data is inversely convertible in the connected apparatus, when the format of the image data cannot be output in the connected apparatus</u>;

selecting a level of an image quality at which the image data is to be transferred to the connected apparatus, based upon capabilities of the connected apparatus;

and performing format conversion of the image data ~~to be transferred to the connected apparatus~~ in accordance with the determined transfer-time format of the image data and the level of the image quality that has been selected

[As noted above, the "*image-forming apparatus*" has a "compression means" for compressing the image data. "Compressing data" corresponds to image data "format conversion".

The "*image-forming apparatus*" determines a "transfer-time format" based on the negotiation between apparatuses. If the image data-receiving (i.e., "first image-forming") apparatus is capable of receiving compressed data, the "transfer-time format" is determined to be "compressed data". As a result, the "second image-forming apparatus" performs format conversion of the image data by using the "compression means" prior to transferring the data to the "first image-forming apparatus"**].**

However, NIITSUMA *does not specifically teach* a first limitation of

determining the transfer-time format based on whether the format of the image data is inversely convertible in the connected apparatus, when the format of the image data cannot be output in the connected apparatus;

and a second limitation of

> ***selecting a level of an image quality at which the image data is to be transferred to the connected apparatus, based upon capabilities of the connected apparatus;***

Regarding the first limitation, DENNIS illustrates in **Fig. 4** three "possible options for delivering a band of data to the printer. The A form … represents a band of data that is described using any number of draw primitives in the form of an RPL [i.e., a "render primitive list"; see **col. 7, lines 28 - 31**]. The B form of the data represents a bit-map data file describing the band. Note that the bit-map may be created in either the host computer 202 or the printer 218. In some cases, the host computer 202 may compress the bit-map data file as represented by the C form"; **col. 25, lines 15 – 23.**

With further reference to **Fig. 2**, DENNIS teaches that "in option 2 the host computer 202 transmits the RPL (A form) directly to the printer 218. The printer renders the RPL (A form) to create a bit-map data file (B form) within the printer"; **col. 25, lines 30 – 33.**

Although the "printer side" may receive data in any one of three forms, it requires bit-map data (i.e., the "B form") for printing. Neither "A" nor "C" data forms can be *directly output by the printer*. In addition, since the "A form" data requires conversion to bit-mapped data (i.e., "B form" data), and the "C form" data requires decompression to bit-

mapped data, both "A" and "C" data forms may be considered "*inversely convertible*" on the printer side.

That is, DENNIS teaches that the *format of the data communicated* between the *image-forming apparatus* and the *connected apparatus* is also determined by whether the *format of the data communicated* can be *inversely converted* by the *connected apparatus* into a form that can be printed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of DENNIS with those of NIITSUMA and determine a transfer-time data format that can be *inversely converted* by the *connected apparatus* into a form that can be output by the *connected apparatus*.

Regarding the second limitation, like NIITSUMA, YOSHIDA teaches an apparatus and method for "remote copying". **Fig. 1** illustrates an "image processing apparatus" **1001** connected to a local area network (LAN) **1010**. **Fig. 2** shows a "controller unit" **2000** "connected to devices such as a scanner 2070 serving as an image input device … and a printer 2095 serving as an image output device … and also connected to a LAN 2011 (LAN 1010) … so as to control the input/output operation of image information and device information"; **col. 5, lines 17 – 24.**

YOSHIDA teaches that the controller unit contains an "image compression / decompression unit 2040" which "performs compression / decompression on image data according to the JPEG standard from multi-level image data and according to the JBIG, MMR, or MH technique for two-level image data"; **col. 5, line 66 – col. 6, line 3.**

As is known in the art, JBIG encoding is a type of "lossless image compression" which can provide higher image quality than an irreversible, "lossy" type compression.

Fig. 17 illustrates a user interface screen from which a remote copy operation may be performed. This screen includes "a printer selection button (3103) and a printer indication box (3102), an image quality selection button (3105) and an image quality indication box (3104)"; **col. 15, lines 19 – 22.** "If the printer selection button (3103) is pressed, a list of names of available printers … is displayed in the form of a pull-down menu"; **col. 15, lines 29 – 32.** "If the image quality setting button (3105) is pressed, a list of image qualities (refer to FIG. 19) is displayed so that a desired image quality (photo mode, character/photo mixed mode, character mode) can be selected from the list"; **col. 15, lines 36 – 39.** "If a copy parameter setting button is pressed, a subscreen for setting the conditions (scaling, paper selection, sorter setting, two-sided copying setting) corresponding to the pressed button appears"; **col. 15, lines 40 – 43.**

YOSHIDA further teaches that the features and characteristics of each of the available printers are provided in an "address book" which includes "document formats that

devices can accept", "compression types that devices can accept", "image resolution that devices can accept", and "paper sizes and information about paper feeders"; **col. 13, lines 4 – 11.** In addition, the "address book stores data representing the data formats, the types of images allowed to be transmitted, and the resolutions, in relation to the respective destinations"; **col. 10, lines 18 – 21.**

As is known in the art, both the *type of compression* (i.e., whether, "lossless" or "lossy") and *image resolution* determine *image quality*.

That is, the user interface shown in **Fig. 17** and the capabilities of an apparatus obtained from an "address book" teach

> ***selecting a level of an image quality at which the image data is to be transferred to the connected apparatus, based upon capabilities of the connected apparatus;***

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of YOSHIDA with those of NIITSUMA and DENNIS so that *image quality could be selected based upon capabilities of the connected apparatus*.

Regarding claim 29, NIITSUMA further teaches the image data transfer method as claimed in claim 26, wherein,

in the acquiring, the connected apparatus is configured to connect to the image-forming apparatus through a network

[NIITSUMA illustrates a first embodiment shown in **Fig. 1** where an "image read out by digital copier 1 or 2 is transferred to the other apparatus through a network 4, and the image received from the other apparatus through the network 4 can also be formed by the digital copier 1 or 2"; **page 4, paragraph 49, lines 9 – 12].**

As for claim 30, NIITSUMA teaches a method of transferring image data between first

[Fig. 1 digital copier ***2*****]**

and second image-forming apparatuses

[Fig. 1 digital copier ***1*****]**

connected via a network

[Fig. 1 network **4]**,

the method comprising:

generating format information, by the first image-forming apparatus, including information on whether a format of the image data is supportable as input by the first image-forming apparatus

[NIITSUMA illustrates a first embodiment shown in **Fig. 1** where an "image read out by digital copier 1 or 2 is transferred to the other apparatus through a network

4, and the image received from the other apparatus through the network 4 can also be formed by the digital copier 1 or 2"; **page 4, paragraph 49, lines 9 – 12.**

NIITSUMA illustrates a second embodiment shown in **Fig. 3** where "the image forming apparatus is the digital copier, and the information processing apparatus is the personal computer"; **page 6, paragraph 87, lines 3 – 5.** NIITSUMA teaches that the second embodiment is "applied *also* for a case where the image forming apparatus *communicates* with the *other* image forming apparatus"; **page 6, paragraph 87, lines 9 – 11.**

NIITSUMA teaches a "second image-forming apparatus" (i.e., digital copier 1) that has a "compression means for compressing the image data and a compression selection means for automatically selecting and determining whether the image data is compressed by the compression means and transmitted, or the image data is not compressed and transmitted"; **page 8, paragraph112, lines 2 – 6.**

NIITSUMA teaches that the "compression selection means" may determine whether the image data is compressed and transmitted by various criteria. One of these criterion is "according to the result of the negotiation with the apparatus of the transferring point"; **page 8, paragraph 116, lines 1 – 2.**

The "first image-forming apparatus" corresponds to this "apparatus of the transferring point". NIITSUMA teaches that the "digital copier 1" (i.e., "second image-forming apparatus") communicates with the "apparatus of the transferring point" (i.e., "first image-forming apparatus") "before the image data is transmitted, and the apparatus of the transmission point directs whether the image data is compressed or not, to the digital copier 1 during the communication"; **page 8, paragraph 117, lines 1 – 5.**

Therefore, NIITSUMA teaches a "first image-forming apparatus" (i.e., the "apparatus of the transferring point"; e.g., another digital copier) generating and communicating format information (i.e., either compressed or uncompressed image data) supportable by the first image-forming apparatus**]**

acquiring the format information, by the second image-forming apparatus, from the first image-forming apparatus via the network

[As noted above, the "second image-forming apparatus" corresponds to a "digital copier 1". This copier communicates with a "first image-forming apparatus" (i.e., another digital copier) and acquires format information supportable by the "first image-forming apparatus"**];**

determining, by the second image-forming apparatus, a transfer-time format [[of]] for the image data ~~to be transferred to the first image-forming apparatus via the network~~, based on the acquired format information

[As noted above, the "second image-forming apparatus" has a "compression selection means" which determines a "transfer-time format" for image data to be transferred to the "first image-forming apparatus" as a result of the negotiation between apparatuses**],**

and determining the transfer-time format based on whether the format of the image data is inversely convertible in the connected apparatus, when the format of the image data cannot be output in the connected apparatus;

selecting a level of an image quality, by the second image-forming apparatus, at which the image data is to be transferred to the first image-forming apparatus, based upon capabilities of the first image-forming apparatus;

and performing a format conversion, by the second image-forming apparatus, of the image data ~~to be transferred to the first image-forming apparatus via the network~~ in accordance with the determined transfer-time format of the image data and the level of the image quality that has been selected

[As noted above, the "second image-forming apparatus" has a "compression means" for compressing the image data. "Compressing data" corresponds to image data "format conversion".

The "second image-forming apparatus" determines a "transfer-time format" based on the negotiation between apparatuses. If the image data-receiving (i.e., "first image-forming") apparatus is capable of receiving compressed data, the "transfer-time format" is determined to be "compressed data". As a result, the "second image-forming apparatus" performs format conversion of the image data by using the "compression means" prior to transferring the data to the "first image-forming apparatus"**].**

However, NIITSUMA *does not specifically teach* a first limitation of

determining the transfer-time format based on whether the format of the image data is inversely convertible in the [connected] first image-forming apparatus, when the format of the image data cannot be output in the [connected] first image-forming apparatus;

and a second limitation of

selecting a level of an image quality, by the second image-forming apparatus, at which the image data is to be transferred to the first image-forming apparatus, based upon capabilities of the first image-forming apparatus;

Regarding the first limitation, DENNIS illustrates in **Fig. 4** three "possible options for delivering a band of data to the printer. The A form … represents a band of data that is described using any number of draw primitives in the form of an RPL [i.e., a "render primitive list"; see **col. 7, lines 28 - 31**]. The B form of the data represents a bit-map data file describing the band. Note that the bit-map may be created in either the host computer 202 or the printer 218. In some cases, the host computer 202 may compress the bit-map data file as represented by the C form"; **col. 25, lines 15 – 23.**

With further reference to **Fig. 2**, DENNIS teaches that "in option 2 the host computer 202 transmits the RPL (A form) directly to the printer 218. The printer renders the RPL (A form) to create a bit-map data file (B form) within the printer"; **col. 25, lines 30 – 33.**

Although the "printer side" may receive data in any one of three forms, it requires bit-map data (i.e., the "B form") for printing. Neither "A" nor "C" data forms can be *directly output by the printer*. In addition, since the "A form" data requires conversion to bit-mapped data (i.e., "B form" data), and the "C form" data requires decompression to bit-mapped data, both "A" and "C" data forms may be considered "*inversely convertible*" on the printer side.

That is, DENNIS teaches that the *format of the data communicated* between the *image-forming apparatus* and the *connected apparatus* is also determined by whether the

format of the data communicated can be *inversely converted* by the *first image-forming apparatus* into a form that can be printed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of DENNIS with those of NIITSUMA and determine a transfer-time data format that can be *inversely converted* by the *first image-forming apparatus* into a form that can be output by the *first image-forming apparatus*.

Regarding the second limitation, like NIITSUMA, YOSHIDA teaches an apparatus and method for "remote copying". **Fig. 1** illustrates an "image processing apparatus" **1001** connected to a local area network (LAN) **1010**. **Fig. 2** shows a "controller unit" **2000** "connected to devices such as a scanner 2070 serving as an image input device … and a printer 2095 serving as an image output device … and also connected to a LAN 2011 (LAN 1010) … so as to control the input/output operation of image information and device information"; **col. 5, lines 17 – 24.**

YOSHIDA teaches that the controller unit contains an "image compression / decompression unit 2040" which "performs compression / decompression on image data according to the JPEG standard from multi-level image data and according to the JBIG, MMR, or MH technique for two-level image data"; **col. 5, line 66 – col. 6, line 3.**

As is known in the art, JBIG encoding is a type of "lossless image compression" which can provide higher image quality than an irreversible, "lossy" type compression.

Fig. 17 illustrates a user interface screen from which a remote copy operation may be performed. This screen includes "a printer selection button (3103) and a printer indication box (3102), an image quality selection button (3105) and an image quality indication box (3104)"; **col. 15, lines 19 – 22.** "If the printer selection button (3103) is pressed, a list of names of available printers … is displayed in the form of a pull-down menu"; **col. 15, lines 29 – 32.** "If the image quality setting button (3105) is pressed, a list of image qualities (refer to FIG. 19) is displayed so that a desired image quality (photo mode, character/photo mixed mode, character mode) can be selected from the list"; **col. 15, lines 36 – 39.** "If a copy parameter setting button is pressed, a subscreen for setting the conditions (scaling, paper selection, sorter setting, two-sided copying setting) corresponding to the pressed button appears"; **col. 15, lines 40 – 43.**

YOSHIDA further teaches that the features and characteristics of each of the available printers are provided in an "address book" which includes "document formats that devices can accept", "compression types that devices can accept", "image resolution that devices can accept", and "paper sizes and information about paper feeders"; **col. 13, lines 4 – 11.** In addition, the "address book stores data representing the data formats, the types of images allowed to be transmitted, and the resolutions, in relation to the respective destinations"; **col. 10, lines 18 – 21.**

As is known in the art, both the *type of compression* (i.e., whether, "lossless" or "lossy") and *image resolution* determine *image quality*.

That is, the user interface shown in **Fig. 17** and the capabilities of an apparatus obtained from an "address book" teach

> ***selecting a level of an image quality, by the second image-forming apparatus, at which the image data is to be transferred to the first image-forming apparatus, based upon capabilities of the first image-forming apparatus;***

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of YOSHIDA with those of NIITSUMA and DENNIS so that *image quality could be selected based upon capabilities of the connected apparatus*.

5. Claims 8 and 31- 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over **NIITSUMA [US Patent Application 2001/0050782 A1]** in view of **DENNIS [US Patent 5,471,563]**, **YOSHIDA [US Patent 6,931,432 B1]** and **KUWAHARA [US Patent 6,603,579 B1].**

Regarding claim 8, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, wherein

> **said format determination part is configured to determine the format of the image data with a highest compression rate as the transfer-time format, based on the information on whether the format of the image data is supportable as input by the connected apparatus.**

KUWAHARA teaches an image-forming apparatus (i.e., a facsimile apparatus) that is "capable of employing MH, MR, MMR, JBIG and other encoding schemes. When the facsimile machine dials a remote party and receives a transmission procedure signal from the remote party, which carries data indicating the *encoding scheme* of the remote party, the facsimile machine may select an encoding scheme to match the encoding scheme indicated by that data"; **col. 2, lines 59 – 66.** "In particular, the encoding method employed by the facsimile machine of the invention can be set to the most efficient common coding method *with the highest compression rate* shared by the two parties, thus enabling even faster transmission of facsimile data"; **col. 3, lines 2 – 6.**

Since the invention of the instant application concerns an image-forming apparatus with a facsimile application, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of KUWAHARA with those of NIITSUMA, DENNIS and YOSHIDA so that the image-forming apparatus could acquire

during negotiation with the connected apparatus both a common "coding method" with the "highest compression rate" so that the data transmission time could be minimized.

Regarding claim 31, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, wherein

> **the format determination part is configured to determine the transfer-time format which is the format of the image data with a highest compression rate that either can be output by the connected apparatus or is convertible by the connected apparatus.**

KUWAHARA teaches an image-forming apparatus (i.e., a facsimile apparatus) that is "capable of employing MH, MR, MMR, JBIG and other encoding schemes. When the facsimile machine dials a remote party and receives a transmission procedure signal from the remote party, which carries data indicating the *encoding scheme* of the remote party, the facsimile machine may select an encoding scheme to match the encoding scheme indicated by that data"; **col. 2, lines 59 – 66.** "In particular, the encoding method employed by the facsimile machine of the invention can be set to the most efficient common coding method *with the highest compression rate* shared by the two parties, thus enabling even faster transmission of facsimile data"; **col. 3, lines 2 – 6.**

Since the invention of the instant application concerns an image-forming apparatus with a facsimile application, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to combine the teachings of KUWAHARA with those of NIITSUMA, DENNIS and YOSHIDA so that the image-forming apparatus could acquire during negotiation with the connected apparatus both a common "coding method" with the "highest compression rate" so that the data transmission time could be minimized.

Regarding claim 32, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, wherein

> **the format determination part is configured to determine the transfer-time format which is the format of the image data with a highest compression rate that either can be output by the connected apparatus or is both convertible and printable by the connected apparatus.**

As previously noted, KUWAHARA teaches an image-forming apparatus (i.e., a facsimile apparatus) that is "capable of employing MH, MR, MMR, JBIG and other encoding schemes. When the facsimile machine dials a remote party and receives a transmission procedure signal from the remote party, which carries data indicating the *encoding scheme* of the remote party, the facsimile machine may select an encoding scheme to match the encoding scheme indicated by that data"; **col. 2, lines 59 – 66.** "In particular, the encoding method employed by the facsimile machine of the invention can be set to the most efficient common coding method *with the highest compression rate* shared by the two parties, thus enabling even faster transmission of facsimile data"; **col. 3, lines 2 – 6.**

Since the invention of the instant application concerns an image-forming apparatus with a facsimile application, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of KUWAHARA with those of NIITSUMA, DENNIS and YOSHIDA so that the image-forming apparatus could acquire during negotiation with the connected apparatus both a common "coding method" with the "highest compression rate" so that the data transmission time could be minimized.

Regarding claim 33, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, wherein

> **the image data conversion part is configured to perform the format conversion of the image data in accordance with the *determined transfer-time format of the image data* and the *level of the image quality that has been selected*, the determined transfer-time format of the image data having a highest compression rate.**

As noted for claim 1, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of YOSHIDA with those of NIITSUMA and DENNIS so that *image quality could be selected based upon capabilities of the connected apparatus* since both the *type of compression* (i.e., whether, "lossless" or "lossy") and *image resolution* determine *image quality*. A higher image resolution enables higher image quality than a lower image resolution, and lossless compression enables higher image quality than lossy compression.

As previously noted, KUWAHARA teaches that the transfer-time data format "can be set to the most efficient common coding method *with the highest compression rate* shared by the two parties, thus enabling even faster transmission of facsimile data"; **col. 3, lines 2 – 6.**

Since the invention of the instant application concerns an image-forming apparatus with a facsimile application, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of KUWAHARA with those of NIITSUMA, DENNIS and YOSHIDA so that the image-forming apparatus could acquire during negotiation with the connected apparatus both a common "coding method" with the "highest compression rate" so that the data transmission time could be minimized *while also taking into consideration*, a desired image quality which has been selected.

6. Claims 9 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **NIITSUMA [US Patent Application 2001/0050782 A1]** in view of **DENNIS [US Patent 5,471,563]**, **YOSHIDA [US Patent 6,931,432 B1]** and **SUZUE [US Patent 6,618,166 B1]**.

Regarding claim 9, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, wherein

said format information acquisition part is configured to acquire the format information from the connected apparatus at a time of activation of the image-forming apparatus.

Likewise, regarding claim 27, NIITSUMA *does not specifically teach* the image data transfer method as claimed in claim 26, wherein

said acquiring acquires the format information from the connected apparatus at a time of activation of the image-forming apparatus.

SUZUE teaches a "tandem image forming system" which is defined as a "system wherein image data are transmitted and received reciprocally and plural image forming apparatuses output images in parallel"; **col. 1, lines 12 – 14.**

SUZUE teaches that "when a power supply for a copying machine is turned on, initialization of OS is completed, and a tandem program representing a resident communication program is started"; **col. 6, lines 37 – 39.** Furthermore, "the tandem program searches for other copying machines connected to the network capable of conducting tandem operations. This searching process is called tandem negotiation"; **col. 6, lines 40 – 43.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of SUZUE with those of NIITSUMA, DENNIS and

YOSHIDA so that format information of all image-forming apparatuses could be ascertained and shared through a negotiation process as soon as the respective apparatuses were turned on and became available on the shared network.

7. Claims 10 - 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **NIITSUMA [US Patent Application 2001/0050782 A1]** in view of **DENNIS [US Patent 5,471,563]**, **YOSHIDA [US Patent 6,931,432 B1]**, **SUZUE [US Patent 6,618,166 B1]** and **TODA [US Patent 6,256,107 B1]**.

Regarding claim 10, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 9, further comprising

> **an evaluation part configured to evaluate the connected apparatus independently based on the information on whether the format of the image data is supportable as input by the connected apparatus.**

TODA similarly teaches a system where copying is distributed among a plurality of remote copying machines. TODA teaches various ways to prioritize (or evaluate or rank) a "connected apparatus" by comparing "communication efficiency" [**col. 17, lines 45 - 46**], the capability of an image-forming apparatus to recognize "letters and characters" [**col. 18, lines 15 - 17**], or the capability of an image-forming apparatus to handle compressed image data [**col. 18, lines 20 - 22**].

TODA refers to the "evaluation part" as a "control means". TODA cites, "the control means preferably considers outputting capacities of the allocating machine and the destination machine searched out as an image forming device capable of outputting in accordance with the set conditions"; **col. 23, lines 34 – 38.**

As noted for claim 1, NIITSUMA teaches a "connected apparatus" (i.e., the "apparatus of the transferring point"; e.g., another digital copier) generating and communicating format information (i.e., either compressed or uncompressed image data) supportable by the "connected apparatus"

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TODA with those of NIITSUMA, DENNIS, YOSHIDA and SUZUE so that an evaluation part could compare image data compression capabilities among all "connected apparatuses", and provide an operator prioritized (or ranked or graded) information so that copying could be effected in an efficient manner.

Regarding claim 11, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 10, wherein

> **the evaluation part is configured to provide a result of the evaluation, the result being displayable to an operator.**

TODA teaches an LCD display [**Fig. 6** reference number **61**]. TODA further teaches the "control means causes information about the selected destination machines to be displayed" on the LCD, "and allows the operator to arbitrarily select any ones to be used for performing the outputting operation from among the selected destination machines"; **col. 24, lines 2 – 7.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TODA with those of NIITSUMA, DENNIS, YOSHIDA and SUZUE so that an evaluation part could compare image data compression capabilities among all "connected apparatuses", and provide an operator, *by means of a display (e.g., an LCD),* prioritized (or ranked or graded) information so that copying could be effected in an efficient manner.

Regarding claim 12, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 10, further comprising:

> **a display configured to display a result of the evaluation by said evaluation part.**

TODA teaches an LCD display [**Fig. 6** reference number **61**] which is a component of the "operation panel unit" [**Fig. 5** reference number **55**]. The "operation panel unit" is a component of the "image-forming apparatus".

TODA further teaches the "control means causes information about the selected destination machines to be displayed" on the LCD, "and allows the operator to arbitrarily select any ones to be used for performing the outputting operation from among the selected destination machines"; **col. 24, lines 2 – 7.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TODA with those of NIITSUMA, DENNIS, YOSHIDA and SUZUE so that an evaluation part could compare image data compression capabilities among all "connected apparatuses", and provide an operator prioritized (or ranked or graded) information, *by means of a display (e.g., an LCD) as part of the "image-forming apparatus",* so that copying could be effected in an efficient manner.

Regarding claim 13, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 9, further comprising

> **an evaluation part configured to evaluate each apparatus connected to the image-forming apparatus via the communication part independently based on the information on whether the format of the image data is supportable as input by the respective apparatus connected to the image-forming apparatus.**

TODA similarly teaches a system where copying is distributed among a plurality of remote copying machines. TODA teaches various ways to prioritize (or evaluate or rank) a "connected apparatus" by comparing "communication efficiency" [**col. 17, lines 45 - 46**], the capability of an image-forming apparatus to recognize "letters and characters" [**col. 18, lines 15 - 17**], or the capability of an image-forming apparatus to handle compressed image data [**col. 18, lines 20 - 22**].

TODA refers to the "evaluation part" as a "control means". TODA cites, "the control means preferably considers outputting capacities of the allocating machine and the destination machine searched out as an image forming device capable of outputting in accordance with the set conditions"; **col. 23, lines 34 – 38.**

TODA further teaches a "communication part" [**Fig. 5** image data communication unit **57**] which is "intended to enable transmission of information including image information and image control signals with another digital image apparatus"; **col. 9, lines 13 – 16.**

As noted for claim 1, NIITSUMA teaches a "connected apparatus" (i.e., the "apparatus of the transferring point"; e.g., another digital copier) generating and communicating format information (i.e., either compressed or uncompressed image data) supportable by the "connected apparatus"

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TODA with those of NIITSUMA, DENNIS, YOSHIDA and SUZUE so that an evaluation part could compare image data compression capabilities among all "connected apparatuses", and provide an operator prioritized (or ranked or graded) information so that copying could be effected in an efficient manner.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over **NIITSUMA [US Patent Application 2001/0050782 A1]** in view of **DENNIS [US Patent 5,471,563]**, **YOSHIDA [US Patent 6,931,432 B1]** and **HUTTENLOCHER [US Patent 6,011,905]**.

Regarding claim 14, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, wherein

> **said format determination part is configured to determine a reversible compression format as the transfer-time format, based on the information on whether the format of the image data is supportable as input by the connected apparatus.**

As noted for claim 1, NIITSUMA teaches the "image-forming apparatus" corresponds to a "digital copier 1". This copier communicates with a "connected apparatus" (i.e.,

another digital copier) and acquires format information supportable by the "connected apparatus".

NIITSUMA further teaches the image-forming apparatus" has a "compression selection means" (or "format determination means") which determines a "transfer-time format" for image data to be transferred to the "connected apparatus" as a result of the negotiation between apparatuses.

However, NIITSUMA does not teach

determining a reversible compression format.

As noted for claim 1, YOSHIDA teaches that the controller unit contains an "image compression / decompression unit 2040" which "performs compression / decompression on image data according to the JPEG standard from multi-level image data and according to the JBIG, MMR, or MH technique for two-level image data"; **col. 5, line 66 – col. 6, line 3.**

HUTTENLOCHER teaches that "data compression techniques convert large data sets, such as arrays of data for pixel images of documents, into more compact representations from which the original large data sets can be either perfectly or imperfectly recovered"; **col. 3, lines 53 – 56.**

The instant applicant's "reversible compression format" corresponds to one in which the original data can be perfectly recovered.

HUTTENLOCHER further cites, "when the recovery is perfect, the compression technique is called lossless; when the recovery technique is imperfect, the compression technique is called lossy"; **col. 3, lines 56 – 59.** "Known encoding techniques that are suitable for lossless image compression include, CCITT Group-4 encoding, which is widely used for facsimile (fax) transmissions, and JBIG encoding"; **col. 4, lines 27 – 30.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of HUTTENLOCHER with those of NIITSUMA, DENNIS and YOSHIDA so that both "lossy" and "lossless" (i.e., reversible) types of compression could be used as the transfer-time format depending on the quality requirements of the copy made on the "connected apparatus".

9. Claims 15 - 17, 20, 21 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **NIITSUMA [US Patent Application 2001/0050782 A1]** in view of **DENNIS [US Patent 5,471,563]**, **YOSHIDA [US Patent 6,931,432 B1]** and **TODA [US Patent 6,256,107 B1]**.

Regarding claim 15, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 1, wherein

said format information acquisition part is configured to acquire the format information from the connected apparatus at a time of transferring the image data thereto.

Likewise, regarding claim 28, NIITSUMA *does not specifically teach* the image data transfer method as claimed in claim 26, wherein

said acquiring acquires the format information from the connected apparatus at a time of transferring the image data thereto.

TODA teaches retrieving information regarding the capability of the remote copying machine at the beginning of a copy job [**Fig. 2** step "start copying?", **S1**]. "When the start key 13 is operated, the CPU 54 resets the image processing unit 51, and then outputs a command for a mode setup to the image processing unit 51 in accordance with conditions set by the operations panel unit 55, whereby the mode setup is performed (S2)"; **col. 13, lines 31 – 36.** Next, "the CPU 54 first checks whether or not an instruction for the allocation processing operation has been given by the operation panel unit 55 (S3)"; **col. 13, lines 37 – 39.** "In the case where it is judged at … step S3 that the job allocating operation should be performed, the CPU 54 executes the processing of the step S4, and then gives an image input command to the image processing unit 51, so as to cause a scanner unit 23 to start reading an image (S5)"; **col. 13, lines 51 – 55.**

Step S4 ["setup for allocation processing" in **Fig. 2**] is further detailed in **Fig. 1.** In step S20 [of **Fig. 1**], "the digital copying machine 1c, which is a copying machine used by the operator and through which an instruction for the job allocation is launched …, judges whether or not conditions this time are identical to those when the previous job allocation was instructed (S20)"; **col. 14, line 65 – col. 15, line 4.** If they are not identical, processing goes to step S21 where "flags indicating various conditions that the operator requests are set" [**col. 15, lines 4 - 5**] followed by step S22 ["retrieve information of copying machine"] where "a copying machine whose setups match the aforementioned conditions is searched for (S22)"; **col. 15, lines 22 – 24**.

After the job allocation process [step **S4** in **Fig. 2**] shown in **Fig. 1** completes, the scanner reads the image or images to be copied [in steps **S5, S6** of **Fig. 2**] and transfers the image data in either steps **S6b** or **S8b** [of **Fig. 2**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TODA with those of NIITSUMA, DENNIS and YOSHIDA so that *current and accurate* format information (i.e., capabilities) of the "connected apparatuses" (i.e., copying machines) could be ascertained just prior to transferring the image data resulting in a higher likelihood of a successful job completion.

Regarding claim 16, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 15, wherein

> **said format information acquisition part is configured to acquire the format information from the connected apparatus, based on an input indicating that the image data is to be transferred.**

As noted for claim 15, TODA teaches that the format information acquisition occurs when the operator presses the "start key" to begin the remote copying process.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TODA with those of NIITSUMA, DENNIS and YOSHIDA so that *current and accurate* format information (i.e., capabilities) of the "connected apparatuses" (i.e., copying machines) could be ascertained just prior to when an operator determines that the image data is to be transferred as this results in a higher likelihood of a successful job completion.

Regarding claim 17, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 15, wherein

> **said image quality selection part is further configured to determine whether to transfer the image data with a high image quality to the connected apparatus.**

As noted for claim 1, YOSHIDA teaches a user interface screen which allows an operator *to determine whether to transfer the image data with a high image quality*.

Regarding claim 20, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 15, wherein

> **said format determination part is configured to determine whether to transfer the image data with a single format when the image data is to be transferred to a plurality of apparatuses connected to the image-forming apparatus via the communication part.**

TODA teaches that efficiency gains are possible when a single format is chosen when transferring image data to a plurality of copying machines. TODA cites, "if the transfer is performed in a single common manner, the load on the allocating machine is remarkably reduced, thereby enhancing the processing efficiency"; **col. 17, lines 25 – 28.** TODA further teaches, "by prioritizing copying machines so that data are transferred to as many copying machines as possible in a single scheme, the transfer-related load on the allocating machine can be decreased, while an output job is allocated to many copying machines thereby improving the total efficiency of the output operation"; **col. 18, lines 1 – 6.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TODA with those of NIITSUMA, DENNIS and

YOSHIDA in order to improve total efficiency of the output operation by using a single image data format.

Regarding claim 21, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 20, wherein

> **said format determination part is configured to transfer the image data to the connected apparatuses with the image data remaining unconverted when the image data is prevented from being transferred to the connected apparatuses with the single format.**

TODA further teaches that whether data is transferred as either "converted" (e.g. compressed) or "unconverted" (e.g., not compressed) data depends on the amount of memory contained in each of the allocated copying machines. TODA cites, "In the case where image data are compressed and transferred, each of copying machines selected as destination machines is required to have a minimum memory needed to restore the compressed data to original image data. However, since the digital copying machine 1-2 does not have a memory, it cannot output a hard copy unless it receives data in an image-data form" (i.e., unconverted form) "which the machine can process for outputting"; **col. 18, lines 22 – 29.** In the example that follows [**col. 18, lines 30 - 35**], digital copying machines 1-3 and 1-4 are selected and prioritized since both machines have sufficient memory to handle compressed image data. However, if digital copying machine 1-2 were to be included in the group of selected copying machines, or if a

majority of connected copying machines lacked sufficient memory to handle compressed image data, it would have been obvious to transfer the image data in an "unconverted" (i.e., uncompressed) form.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of TODA with those of NIITSUMA, DENNIS and YOSHIDA by sending "unconverted" image data when not all "connected apparatuses" have sufficient memory to handle compressed image data.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over **NIITSUMA [US Patent Application 2001/0050782 A1]** in view of **DENNIS [US Patent 5,471,563]**, **YOSHIDA [US Patent 6,931,432 B1]**, **TODA [US Patent 6,256,107 B1]** and **HUTTENLOCHER [US Patent 6,011,905]**.

Regarding claim 18, NIITSUMA *does not specifically teach* the image-forming apparatus as claimed in claim 17, wherein

> **said format determination part is configured to determine a reversible compression format as the transfer-time format, based on the information on whether the format of the image data is supportable as input by the connected apparatus, when said image quality selection part determines the image data is to be transferred with the high image quality to the connected apparatus.**

As noted for claim 1, NIITSUMA teaches the "image-forming apparatus" corresponds to a "digital copier 1". This copier communicates with a "connected apparatus" (i.e., another digital copier) and acquires format information supportable by the "connected apparatus".

NIITSUMA further teaches the image-forming apparatus" has a "compression selection means" (or "format determination means") which determines a "transfer-time format" for image data to be transferred to the "connected apparatus" as a result of the negotiation between apparatuses.

As noted for claim 1, YOSHIDA teaches an "image quality selection part" (i.e., a user interface screen).

However, NIITSUMA *does not teach*

determining a reversible compression format.

As noted for claim 1, YOSHIDA teaches that the controller unit contains an "image compression / decompression unit 2040" which "performs compression / decompression on image data according to the JPEG standard from multi-level image data and according to the JBIG, MMR, or MH technique for two-level image data"; **col. 5, line 66 – col. 6, line 3.**

HUTTENLOCHER teaches that “data compression techniques convert large data sets, such as arrays of data for pixel images of documents, into more compact representations from which the original large data sets can be either perfectly or imperfectly recovered”; **col. 3, lines 53 – 56.**

The instant applicant’s “reversible compression format” corresponds to one in which the original data can be perfectly recovered.

HUTTENLOCHER further cites, “when the recovery is perfect, the compression technique is called lossless; when the recovery technique is imperfect, the compression technique is called lossy”; **col. 3, lines 56 – 59.** “Known encoding techniques that are suitable for lossless image compression include, CCITT Group-4 encoding, which is widely used for facsimile (fax) transmissions, and JBIG encoding”; **col. 4, lines 27 – 30.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of HUTTENLOCHER with those of NIITSUMA, DENNIS, YOSHIDA and TODA so that a “lossless” (i.e., reversible) type of compression could be used as the transfer-time format when an operator desired, by means of an “image quality setting screen”, a high quality copy.

11. Claims 23 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over **NIITSUMA [US Patent Application 2001/0050782 A1]** in view of **DENNIS [US Patent 5,471,563]**.

As for claim 23, NIITSUMA teaches an image-forming apparatus

[Fig. 2 digital copier **1]**,

comprising:

[[with]] a hardware resource configured to be used for image formation

[Fig. 2 image forming means **14]**; [[,]]

a program configured to perform processing related to the image formation

[Fig. 2 controller **12;** "the control means 12 is structured by a single central processing unit CPU, and by this single CPU, operations and controls of the … digital copier 1 are conducted"; **page 6, paragraph 92, lines 1 - 4]**; ~~,~~

~~and~~ a communication part

[Fig. 2 network connecting means **11]**; ~~,~~

~~the image-forming apparatus comprising:~~

a format information generation part configured to generate format information on a format of image data supportable as input by the image-forming apparatus

[NIITSUMA teaches an "image-forming apparatus" which corresponds to an "*apparatus of the transferring point*". NIITSUMA teaches that the "*digital copier 1*" (i.e., the "connected apparatus") communicates with the "apparatus of the transferring point" (i.e., "image-forming apparatus") "before the image data is transmitted, and the *apparatus of the transmission point* directs whether the image data is compressed or not, to the *digital copier 1* during the communication"; **page 8, paragraph 117, lines 1 – 5.**

Therefore, NIITSUMA teaches an "image-forming apparatus" (i.e., the "*apparatus of the transferring point*"; e.g., a digital copier) generating and communicating format information (i.e., either compressed or uncompressed image data) supportable by the "image-forming apparatus"**]**

a format information supply part configured to supply the generated format information to an apparatus connected to the image-forming apparatus via the communication part

[As noted, NIITSUMA teaches an "image-forming apparatus" which communicates (or supplies) the generated format information to a "connected apparatus"**];**

and an image data conversion part configured to convert image data received from the connected apparatus in accordance with a format of the received image data

[NIITSUMA teaches that the "image-forming apparatus" (i.e., the *apparatus of the transferring point*) may have "an extension function to extend" (or expand) "the compressed image data" [**page 8, paragraph 117, lines 10 -11**]**],**

the format of the received image data being based on the generated format information

[NIITSUMA teaches that the "compression selection means" may determine whether the image data is compressed and transmitted by various criteria. One of these criterion is "according to the result of the negotiation with the apparatus of the transferring point"; **page 8, paragraph 116, lines 1 – 2.**

The "connected apparatus" corresponds to the "*digital copier 1*". NIITSUMA teaches that the "*apparatus of the transferring point*" (i.e., the "image-forming apparatus") communicates with the "*digital copier 1*" (i.e., the connected apparatus) "before the image data is transmitted, and the *apparatus of the transmission point* directs whether the image data is compressed or not, to the digital copier 1 during the communication"; **page 8, paragraph 117, lines 1 – 5.**

Therefore, NIITSUMA teaches a "connected apparatus" (i.e., the "*digital copier 1*") which can determine the format of the received image data (with respect to the "image-forming apparatus") based on the generated format information (i.e., the "direction" from the "image-forming apparatus)**]**

and being inversely convertible in the image-forming apparatus, when the format of the received image data cannot be output by the image-forming apparatus.

However, NIITSUMA *does not specifically teach* the format of the received image data

being inversely convertible in the image-forming apparatus, when the format of the received image data cannot be output by the image-forming apparatus.

With reference to **Fig. 4**, DENNIS illustrates three "possible options for delivering a band of data to the printer. The A form … represents a band of data that is described using any number of draw primitives in the form of an RPL [i.e., a "render primitive list"; see **col. 7, lines 28 - 31**]. The B form of the data represents a bit-map data file describing the band. Note that the bit-map may be created in either the host computer 202 or the printer 218. In some cases, the host computer 202 may compress the bit-map data file as represented by the C form"; **col. 25, lines 15 – 23.**

With further reference to **Fig. 2**, DENNIS teaches that "in option 2 the host computer 202 transmits the RPL (A form) directly to the printer 218. The printer renders the RPL (A form) to create a bit-map data file (B form) within the printer"; **col. 25, lines 30 – 33.**

Although the "printer side" may receive data in any one of three forms, it requires bit-map data (i.e., the "B form") for printing. Neither "A" nor "C" data forms can be *directly output by the printer*. In addition, since the "A form" data requires conversion to bit-mapped data (i.e., "B form" data), and the "C form" data requires decompression to bit-mapped data, both "A" and "C" data forms may be considered "*inversely convertible*" on the printer side.

That is, DENNIS teaches that the *format of the data communicated* between the *image-forming apparatus* and the *connected apparatus* is also determined by whether the *format of the data communicated* can be *inversely converted* by the *image-forming apparatus* into a form that can be printed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of DENNIS with those of NIITSUMA and determine a transfer-time data format that can be *inversely converted* by the *image-forming apparatus* into a form that can be output by the *image-forming apparatus*.

Regarding claim 24, NIITSUMA further teaches the image-forming apparatus as claimed in claim 23, wherein the format information generation part is configured to generate said format information, which includes at least one of:

information indicating, format by format, whether [[a]] the format of the image data is supportable as input and is supportable as output by the image-forming apparatus

[As previously noted for claim 23, NIITSUMA teaches an "image-forming apparatus" (i.e., the "apparatus of the transferring point"; e.g., another digital copier) generating and communicating format information (i.e., either compressed or uncompressed image data *formats*) supportable by the "image-forming apparatus".

NIITSUMA illustrates a first embodiment shown in **Fig. 1** where an "image read out by digital copier 1 or 2 is transferred to the other apparatus through a network 4, and the image received from the other apparatus through the network 4 can also be formed by the digital copier 1 or 2"; **page 4, paragraph 49, lines 9 – 12.**

That is, an image read by a connected apparatus can be transferred to the "image-forming apparatus" (as *input*) and "formed" (as *output*) by the image-forming apparatus**];**

information on whether the format of the image data is convertible in the image-forming apparatus

[NIITSUMA further teaches that the "image-forming apparatus" may have an "extension function" that "extends" (or expands) compressed image data; **page 8, paragraph 117, lines 10 – 11.** When an "extension function" is present in the "image-forming apparatus", the "image-forming apparatus" directs the "connected apparatus" to compress the image data; **page 8, paragraph 117, lines 11 – 14.**

Therefore, "information on a format" of image data (i.e., compressed image data) convertible (i.e., "expandable") in the "image-forming apparatus" is communicated to the "connected apparatus".**];**

information on a compression of a convertible format of the image data

[As noted above, NIITSUMA teaches that the "image-forming apparatus" provides information by directing the "connected apparatus" to either compress or not compress the image data based on whether or not the "image-forming apparatus" has an "extension function". "When the apparatus … has an extension function to extend the compressed image data, the apparatus directs" (the connected apparatus) "to compress the image data and transfer it, and when it does not have, the apparatus directs" (the connected apparatus) "to not compress the image data and transfer it"; **page 8, paragraph 117, lines 10 - 14];**

and information as to whether the format of the image data is convertible by hardware in the image-forming apparatus

[As noted above, NIITSUMA teaches that the "image-forming apparatus" conveys information (to the "connected apparatus") as to whether the image data is convertible by hardware (i.e., an "extension function") by directing the "connected apparatus" to either compress or not compress the image data**].**

Regarding claim 25, NIITSUMA further teaches the image-forming apparatus as claimed in claim 23, wherein

the communication part is configured to connect the image-forming apparatus to the connected apparatus through a network

[NIITSUMA illustrates a first embodiment shown in **Fig. 1** where an "image read out by digital copier 1 or 2 is transferred to the other apparatus through a network 4, and the image received from the other apparatus through the network 4 can also be formed by the digital copier 1 or 2"; **page 4, paragraph 49, lines 9 – 12.**

The "network connecting means" **11** shown in **Fig. 2** corresponds to the "communication part"**].**

Response to Arguments

12. Applicant's arguments filed **1/28/2009** have been fully considered but are rendered moot in view of the new grounds of rejection necessitated by the amended claims.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter L. Cheng whose telephone number is 571-270-

3007. The examiner can normally be reached on MONDAY - FRIDAY, 8:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/
Supervisory Patent Examiner, Art Unit 2625

/PLC/
April 5, 2009